

# The Relevance of Culture Collections within the Scope of the Revised (2022) ICNP

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and

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# ”The Prokaryotic Code”: (ICNP) 2008 rev.

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**AND EVOLUTIONARY**  
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## International Code of Nomenclature of Prokaryotes

### Prokaryotic Code (2008 Revision)

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**All intellectual activities of mankind have as common denominator  
the introduction of some kind of order**

**Structuralism (Claude Lévi Strauss)**



**Nature does not appear ordered,  
to our eyes**



**We need to produce an order  
in nature, to understand it**

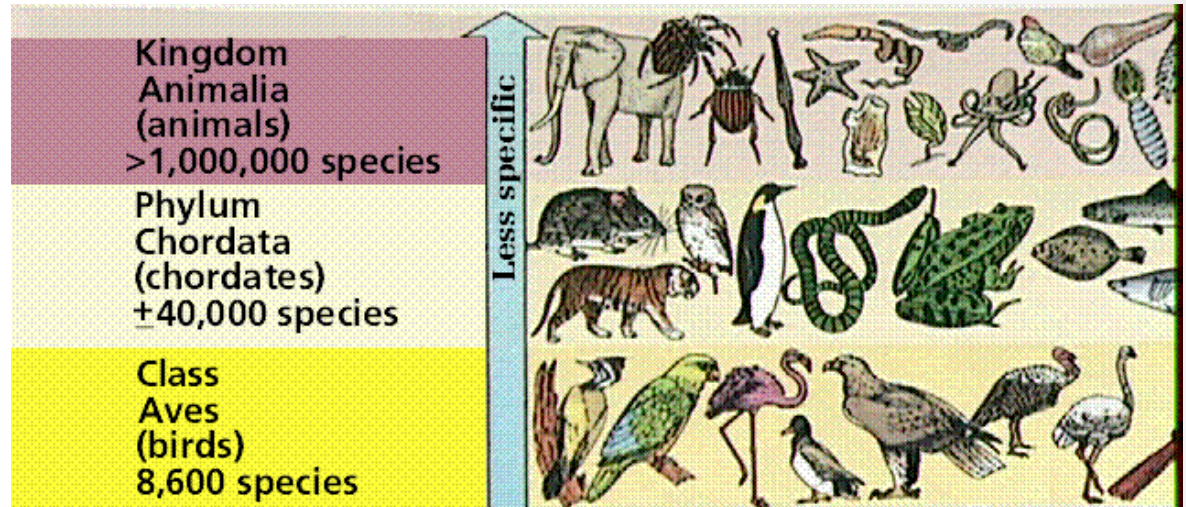


# Taxonomy



Carl Linnaeus

"Father" of  
modern taxonomy



Defines 'taxa' or categories  
according to hierarchical  
structure of specified criteria;  
includes: characterisation;  
classification; nomenclature.

# Prokaryotic Taxonomy

Essential for furthering developments in academic, medical and biotechnology research

**Characterisation:** key element in microbial taxonomy

- 1) phenotypic traits – traditional basis of microbial characterisation
- 2) genotypic traits – methods of choice for the last 30 years
- 3) genomic traits – the new 'Gold Standard'

'polyphasic characterisation' vs. 'minimalist characterisation'

**Classification:** arrangement of organisms into categories (taxa) on the basis of similarities or relationships

Prokaryote hierarchical classification follows the general scheme proposed by Carl Linnaeus in *Systema Naturae* (1735)

'working classification' relies on genus and species  
currently, approx. 20,000 prokaryotic species

**Nomenclature:** assignment of names to the taxonomic units that have been characterised and classified

'The Code': International Code of Nomenclature of Prokaryotes (ICNP)  
→ regulates nomenclature of Prokaryotes

# 'The Code': International Code of Nomenclature of Prokaryotes (ICNP)

- 1917 Winslow et al. The families and genera of the bacteria ...
- 1920 Winslow et al. The families and genera of the bacteria ...
- 1947 Buchanan & St. John-Brooks. Propoosed Bacteriological Code of Nomenclature ...
- 1948 Buchanan et al. International Bacteriological Code of Nomenclature ...

→ Split from the Botanical Code

- 1958 Buchanan et al. International Code of Nomenclature of Bacteria and Viruses: Bacteriological Code ...
- 1975 Lapage et al. International Code of Nomenclature of Bacteria ...
- 1990 Lapage et al. . International Code of Nomenclature of Bacteria ...
- 2008 Parker et al. . International Code of Nomenclature of Prokaryotes. Prokaryotic Code (2008 Revision) IJSEM. 69(1A): S1-S111 (2019).

The Code is divided into: Principles; Rules; Recommendations

- 1) The Principles form the basis of The Code,  
the Rules and Recommendations are derived from them;
- 2) The Rules are designed to make effective the Principles,  
to order past nomenclature and to provide for future nomenclature;
- 3) The Recommendations, deal with subsidiary points;
  - do not have the force of Rules, they are intended to be guides

**Principle 1 (4): Nothing in this Code may be construed to restrict the freedom of taxonomic thought or action." 65 Rules**

# Revision of The Code – 2022 ver.

A 2-year process, starting in November 2020

Proposed revisions submitted by the ICNP Editorial Board of the International Committee on the Systematics of Prokaryotes (ICSP) to the microbiology community - June 30, 2022

Revised items of the ICNP:

3 General Considerations

4 Principles

26 Rules – from proposals for revision published in IJSEM

19 Appendices

## **Revision of The Code – 2022 ver.**

A discussion period on the SLACK online platform followed for 6-months  
- July 1, 2021 – December 31, 2021

A 2-month period allows the authors of the proposals for amendment may  
respond to the proposed revisions - January 1, 2022 – February 28, 2022

The ICNP Editorial Board prepares summary materials for voting among  
members of the ICSP

The ICSP voted on the revised ICNP - April 1, 2022 – June 30, 2022

All items for revision, except one, were approved by vote.



# The Revised (2022) ICNP - Relevance for Culture Collections

2 issues that have been somewhat controversial:

## Rule 30 – Valid publication of the name of a species

For the name of a species to be validly published, it must confirm with the following conditions.

- (3)(b) As of 1 January 2001, the valid publication of the name of a new species, or a combination previously represented by viable cultures must include the designation of a type strain, and a viable culture of that strain must be deposited in at least two culture collections in different countries **that are publicly accessible at the time of publication in the IJSEM and are able to provide the strain to the scientific community. At least one designation allotted to the type strain by a culture collection must be cited in effective publications not published in the IJSEM.** The designations allotted to the type strain by the culture collections are to be quoted at the time of valid publication. **Evidence must be presented that the cultures are present viable, and available at the time of publication in the IJSEM.**
- -

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Date: June 07, 2019

**CERTIFICATE CONFIRMING DEPOSIT AND AVAILABILITY OF A TYPE STRAIN**

This Certificate confirms that the listed strain is held within the CCUG and has passed the viability, purity and authentication controls. The strain is archived irrevocably, except in the case that it is found to be unsuitable.

In accordance with the International Code of Nomenclature (the Prokaryotic Code), the strain has been assigned a collection accession number; this number may not be subsequently altered.

The strain is available to the international scientific community upon the valid publication of the species/sub-species name(s)/epithet(s) in the International Journal of Systematic and Evolutionary Microbiology or upon publication of the description of the new species/sub-species.

Upon valid publication, the information on the strain will be transferred to the CCUG open database, on internet: <http://www.ccug.se>

Edward Moore, Curator – CCUG

CCUG 66741 T

*Scandinavium goeteborgense* gen. nov., sp. nov.

HIS: 20141229 <- Dept Clinical Microbiology, Sahlgrenska Hospital, Gothenburg SE  
OCC: CECT 9823T = NCTC 14286T  
AUTH: 16S rRNA gene sequence (MK561856)  
AUTH: whole-genome sequence (LPLP00000000)  
RESTR: Restricted distribution until publication or 3 years

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2 posters  
from my  
colleagues,  
on the use  
of 16S rRNA  
gene seqs  
and WGS  
as QC for  
type strains.

**Whole-Genome  
Sequence in the  
future?**

# Relevance for Strain Collections

IJSEM requires CoDs for type strains from authors before accepting manuscripts for valid publications of novel taxa.

Authors must deposit type strains with Collections and provide all documentation required by the country of origin.

For Collections to be able to provide CoDs to authors for deposits of type strains, they must know that they have all documents necessary to accept strains from some countries.

**It is illegal to receive genetic resources, including type strains, from some countries without all documentation from the depositor.**

195 countries in the world: some require MATs and/or other documents

So, Collections face a complex situation, given that different countries require different documentation.

# The Revised (2022) ICNP - Relevance for Culture Collections

2 issues that have been somewhat controversial:

Rule 30 – Valid publication of the name of a species

For the name of a species to be validly published, it must conform with the following conditions.

- (4) Deposits to which access is restricted, such as safe deposits of strains made solely for current patent purposes, and deposits for which access is not possible until a national authority or any other third party grants permission, may not serve as deposits of type strains. Material Transfer Agreements or other contractual agreements may be attached to deposits of type strains only if these agreements do not prohibit the distribution of subcultures of the deposit for, at least, research for taxonomic purposes.

Problems still exist regarding MTAs, etc.



# The Convention on Biological Diversity (CBD – 1993), The Nagoya Protocol on Access and Benefit-Sharing (ABS – 2014) and MTAs



## **Material Transfer Agreement**

between

Comisión Nacional para la Gestión de la Biodiversidad  
Ministerio de Ambiente y Energía, Costa Rica (hereinafter CONAGEBIO)  
and

The Culture Collection University of Gothenburg (hereinafter CCUG)

The purpose of this agreement is to facilitate the deposit of microorganisms including viruses from Costa Rica in the public collection of the CCUG, to ensure that genetic and biochemical resources from Costa Rica can legally be transferred to customers of the CCUG for basic, non-commercial research purposes and that CONAGEBIO is informed whenever such transfer occurs and to ensure that non-monetary benefits, as research results and scientific publications, are shared with Costa Rica as a provider country.

WHEREAS Costa Rica is a Party to the Convention on Biological Diversity and has legislation<sup>1</sup> that regulates access to genetic and biochemical resources within its territory and requires benefit-sharing arising from the use of such resources for research and development;

WHEREAS the utilization of genetic or biochemical resources from biodiversity, including

# MTAs – Relevance for Strain Collections

The Code requires that type strains be deposited in Collections and – Accessible – including MTAs?

MTAs are important for Collections with respect to two different issues:

- 1) Do Collections use an MTA that imposes restrictions on the access of type strains?
- 2) Do Collections accept deposits of type strains with MTAs of the depositors that impose any restrictions on access?

These issues are important for Collections, because they must provide Certificates/Confirmations of Deposit (CoDs) for type strains to depositors/authors, for the IJSEM to confirm manuscripts for valid publications of new taxa.



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doi: [10.1093/femsle/fnaa044](https://doi.org/10.1093/femsle/fnaa044)

Advance Access Publication Date: 9 March 2020

Minireview

MINIREVIEW – Professional Development

# New ECCO model documents for Material Deposit and Transfer Agreements in compliance with the Nagoya Protocol

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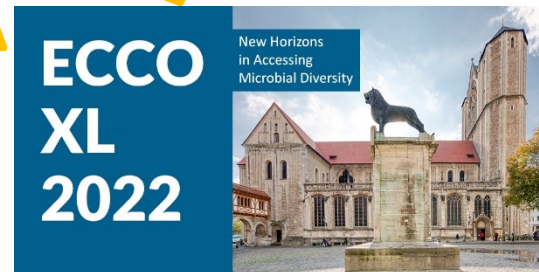
# Acknowledge and Thank

I thank the members of the ICNP Editorial Board of the ICSP

<https://www.the-icsp.org>



I thank the DSMZ for organising  
this ECCO meeting.  
and  
32 years collaboration!



Thank you for your attention!